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WASHING DEVICE, ESPECIALLY FOR THE HOTEL AND RESTAURANT INDUSTRY
[WASCHEINRICHTUNG, INSBESONDRE FUER DAS GASTGEWERBE]

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The invention relates to a washing device especially for the hotel and restaurant industry.

The customary washing devices are so constructed that during the washing cycle hot fluid is continually sprayed from above, below and from the sides on the items to be washed with a spray pressure on the order of magnitude of 1 kg/cm². Experience, however, has shown that this is not sufficient to thoroughly clean items to be washed with persistently adhering impurities - e.g., frying pans, devices to prepare baked ham - in an appropriately short washing cycle.

It has been shown during extensive tests that the difficulty can only be mastered by very powerfully concentrated beams of hot washing fluid being aimed at the items to be washed. It was surprisingly then also learned that the washing effect is especially good when such beams are sprayed intermittently.

Proceeding from that knowledge the invention proposes a washing device designed for the hotel and restaurant industry which is characterized by

- a) a number of spray tube sets positioned adjacent to each other, each of which consists of two spray tubes placed above each other that are provided with spray jets emitting concentrated beams aimed at each other,

- b) a pump to supply the spray tubes with a hot washing fluid at a pressure of at least 5 kg/cm^2 , and
- c) a distributor featuring a rotor inserted in the flow connection between the pump and the spray tubes, in addition to a motor drive for the rotor, which distributor is so constructed that it supplies the washing fluid to the individual spray tube sets in a cyclical sequence for the duration of only a few seconds.

It was seen that with such a construction the use of washing fluid per time unit is much less - namely in a relationship to the number of spray tube sets - than with continuous spraying from all spray tubes and that the pump can have a correspondingly lower power. Furthermore, it is easier to drain off the washing fluid entering the washing area. The arrangement of the two spray tubes of each set so that their jets can spray against each other downward and upward helps prevent that lightweight items of the goods being thrown about by the hard beams.

With regard to the construction of the distributor there are several possibilities which will be described in the following examples. It should be pointed out that the inventive construction can advantageously be provided in combination with a customary one in which many spray tubes can be supplied from a pump with a pressure of about 1 kg/cm^2 , whereby the jets placed

on the spray tubes spray the washing fluid upward, downward and to the sides (e.g., from the back side of the washing area).

The attached drawings show an embodiment of the inventive washing device and two embodiments of an associated distributor but only in so far as this appears necessary for an understanding of the invention.

Shown are:

Figure 1: A schematic outline in which the housing of the distributor is partially shown in a sectional view,

Figure 2: A side outline for Figure 1 with the motor drive of the distributor omitted,

Figure 3: A partial longitudinal sectional view in a larger scale of the distributor seen in Figures 1 and 2,

Figures 4 and 5: Transverse and longitudinal sectional view of a first embodiment of the distributor, and

Figures 6 and 7: Transverse and longitudinal sectional view of a second embodiment of the distributor.

The washing device especially for the hotel and restaurant industry schematically depicted in Figures 1 and 2 exhibits a number of spray tube sets positioned adjacent to each other of which each consists of two spray tubes 1, 2 placed above each other which are provided with spray jest 3 and 4 emitting concentrated beams aimed against each other. Placed at 5 is a wire grating on which the items to be washed W are laid.

The washing device features a pump (of which only a flange of the exit nozzle is designated with 6 in Figure 1) which serves to supply spray tubes 1, 2 with a hot washing fluid at a pressure of at least 5 kg/cm². Moreover, the washing device features a distributor 7 exhibiting a rotor 8 inserted in the flow connection between the pump and the spray tubes in addition to a motor drive for the rotor 8 which distributor is so constructed that it sends the washing fluid to the individual spray tube sets for the duration of only a few seconds.

In the embodiment shown in Figures 1-3 the distributor 7 exhibits a housing with a cylindrical part 9 which is provided with a long row of bifurcated exit nozzles 10 on which the two spray tubes 2, 3 of the individual spray tube sets are attached by means of connection tubes 11 (or pressure-resistant hoses). In addition to a central longitudinal channel 12 connected with the exit nozzle 6 of the pump, its rotor 8 has radial channels 13 branching off of the former which are aligned with the individual nozzles 10 and are angularly offset to each other in a uniform manner, as can be seen from the depicted arrangement of the exit openings of these radial channels. The output shaft 14 of a reduction gear 15 is power-connected with the pivot 8a of the rotor 8 which for its parts is powered by the previously mentioned motor drive of the associated electric motor, whereby the rotational speed of the rotor 8 is such that the previously

mentioned supply of the individual spray tubes 2, 3 lasts for only a few seconds.

In the embodiment shown in Figures 4 and 5, a central channel 17 in the distributor rotor 16 connected with the output nozzle of the pump empties in a continuous channel 18 spanning a diameter. The housing 19 consists of components secured to each other with screws and designed with a weld construction, whereby a cover part 19a has a crest of welded-on exit nozzles 20; the two spray tubes 2, 3 of the individual spray tube sets are attached by means of pressure-resistant hoses (not shown) to two such diametrically opposed exit nozzles 20.

In the variant shown in Figures 6 and 7 a central channel 22 in the distributor rotor 21 connected with the output nozzle of the pump empties in two radial channels 23 positioned next to each other in the longitudinal direction of the distributor; the housing 24 (constructed similar to that of the variant of Figures 4 and 5) features a cover part 24a which is provided with two crests of exit nozzles, whereby the two spray tubes of the individual spray tube sets are attached to each two such adjacent exit nozzles.

Applicable for both embodiments is the fact that when the spray tube sets are numbered in the sequence according to Figure 1 with 1, 2, 3 ... 7, the connections on the exit nozzles of the distributor do not necessarily have to be, so that in each spray

cycle there is the spray sequence 1, 2, 3 ... 7; instead, every other spray sequence could be performed. Something similar could apparently be achieved

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in the embodiment of Figures 1 - 3 by another rotational offset of the radial channels 13.

As previously mentioned at the outset, in the washing device one usually also has the customary spray system with a variety of spray tubes continuously supplied by a pump at a pressure on the order of magnitude of 1 kg/cm² whose jets spray the washing fluid, e.g., from above, underneath and from the sides.

Patent Claim

Washing device especially for the hotel and restaurant industry, characterized by a number of spray tube sets positioned next to each other of which each consists of two spray tubes placed above each other that are provided with spray jets emitting concentrated beams aimed at each other, a pump to supply the spray tubes with a hot washing fluid at a pressure of at least 5 kg/cm², and a distributor featuring a rotor inserted in the flow connection between the pump and the spray tubes, in addition to a motor drive for this rotor, which distributor is so constructed that it supplies the washing fluid to the

individual spray tube sets in a cyclical sequence for the duration of only a few seconds.

Subordinate Claims

1. Washing device according to the main patent claim, characterized in that the distributor features a housing with a cylindrical part (9) which is provided with a longitudinal row of bifurcated exit nozzles (10) on which the two spray tubes (2, 3) of the individual spray tube sets are attached, and its rotor has, in addition to a central longitudinal channel (12) connected with the exit nozzle of the pump, radial channels (13) branching off it which are angularly offset to each other in a uniform manner.

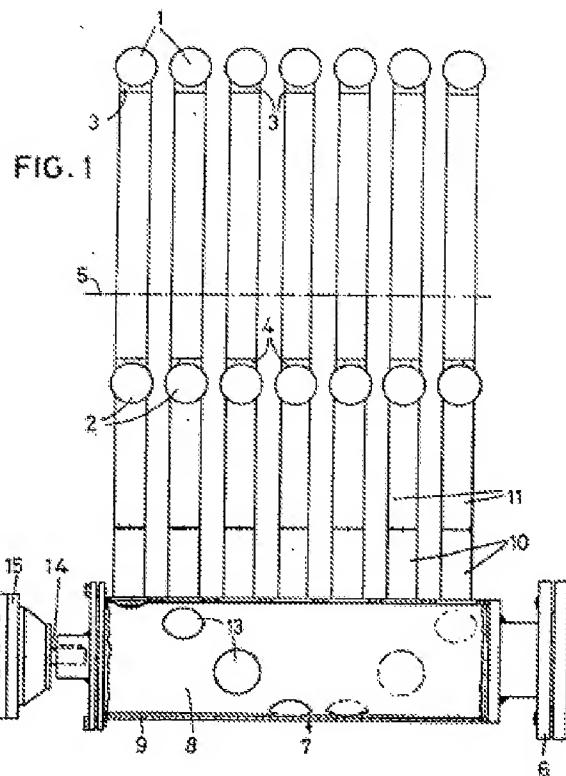
2. Washing device according to the main patent claim, characterized in that a central channel (17) in the distributor rotor (16) connected with the output nozzle of the pump empties in a continuous channel (18) spanning a diameter, and that the housing of the distributor has a crest of welded-on exit nozzles (20), whereby on each two such diametrically opposed exit nozzles the two spray tubes (2, 3) of the individual spray tube sets are attached.

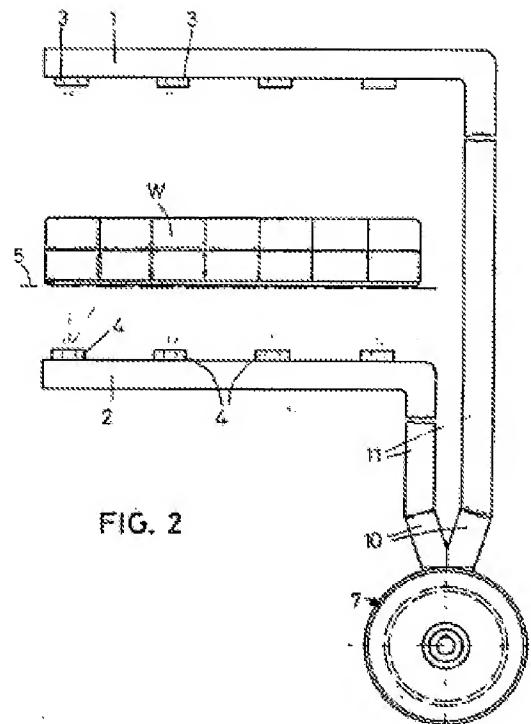
3. Washing device according to the main patent claim, characterized in that a central channel (22) in the distributor rotor (21) connected with the output nozzle of the pump empties

in two radial channels (23) positioned next to each other in the longitudinal direction of the distributor, and that a housing of the rotor has two crests of exit nozzles (25), whereby the two spray tubes (2,3) of the individual spray tube sets are attached to each two such adjacent exit nozzles.

4. Washing device according to the main patent claim or one of subordinate claims 1 to 3, characterized in that it also features a spray system with a variety of spray tubes continuously supplied by a pump at a pressure on the order of magnitude of 1 kg/cm² whose jets spray the washing fluid, e.g., from above, underneath and from the sides.

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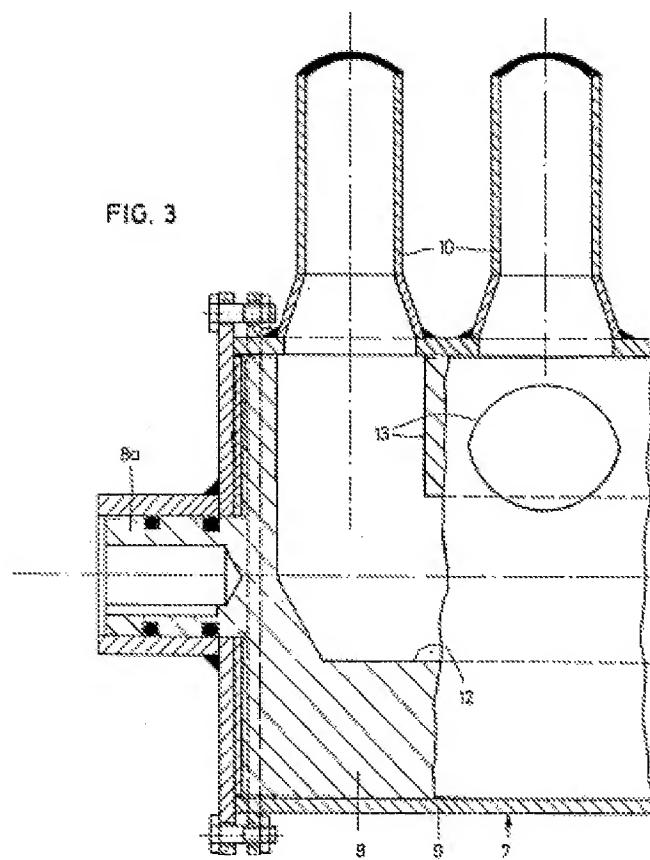


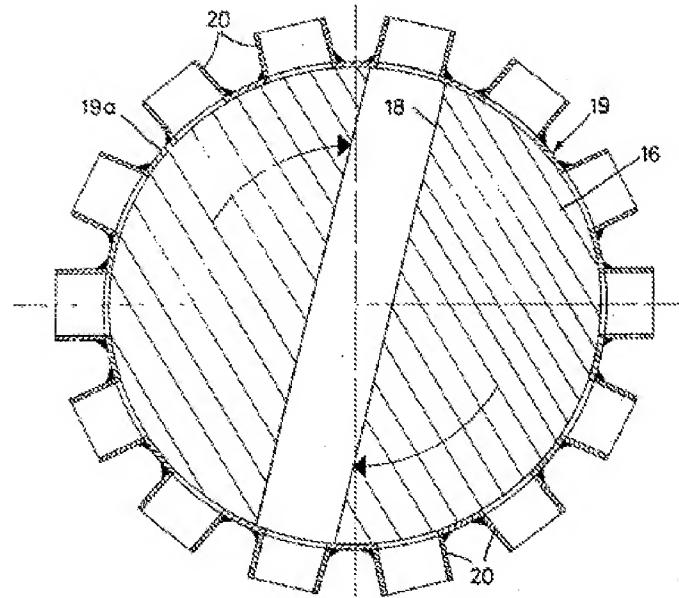
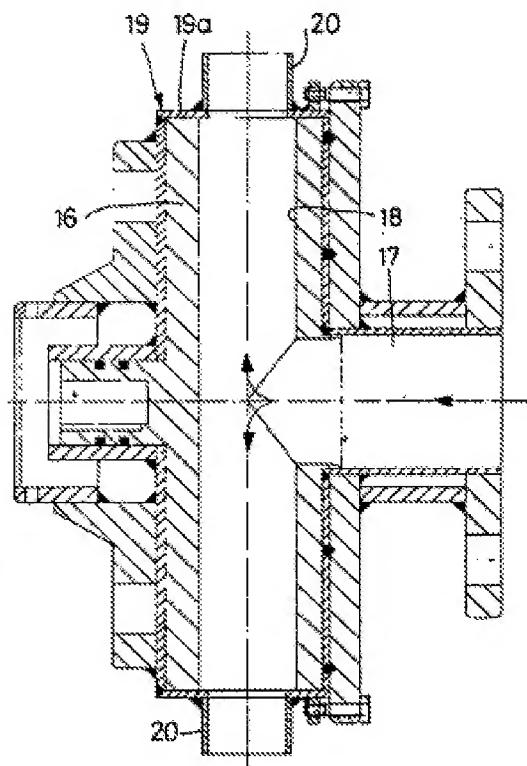
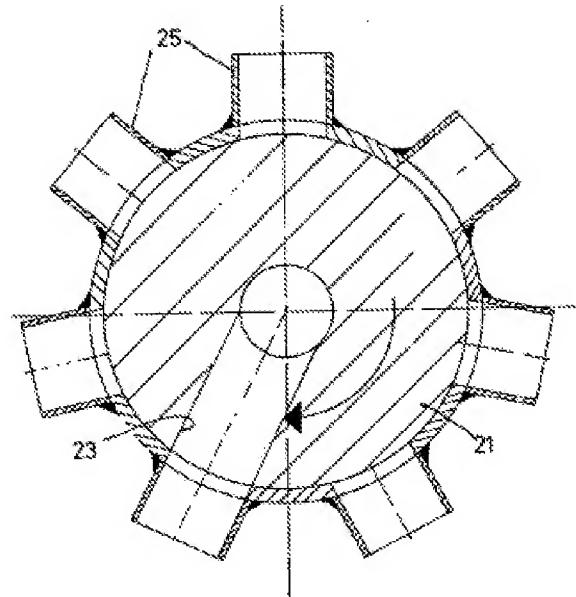
FIG. 4**FIG. 5**

FIG. 6**FIG. 7**